THE MINERAL INDUSTRY OF PERU

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In 2004, Peru remained among the leading world producers of such mineral commodities as arsenic trioxide (third after China and Chile), bismuth (second after China), copper (third after Chile and the United States), lead (fourth after China, Australia, and the United States), molybdenum (fourth after the United States, Chile, and China), rhenium (second after Chile), silver (second after Mexico), tin (third after China and Indonesia), and zinc (second after China) (Brooks, 2005; Carlin, 2005; Edelstein, 2005; Gabby, 2005; George, 2005; Hilliard, 2005; Magyar, 2005a, b; Ministerio de Energía y Minas, 2005a, p. 66; Plachy, 2005).

In 2004, with an area of about 1.3 million square kilometers and a population of almost 28 million, Peru had a gross domestic product (GDP) based on purchasing power parity of $155.3 billion.[1] Peru's real GDP growth was 4.8% compared with 4.0% in 2003. The annual inflation rate in 2004 was 3.5% compared with 2.5% in 2003 (Banco Central de Reserva del Perú, 2005a§,[2] b§; International Monetary Fund, 2005§; U.S. Central Intelligence Agency, 2005§). The mining and fuel sectors contributed a total of 5.4% of Peru's real GDP compared with 6.8% in 2003. Peru's mining industry, which has consistently been the country's major foreign exchange generator, accounted for about 55.5% ($7.0 billion) of total export revenues of more than $12.6 billion in 2004. In 2004, Peru's trade balance recorded a surplus of about $2.8 billion compared with $836 million in 2003. Peru's trade grew by 36.7% compared with 6.1% in 2003 (Ministerio de Energía y Minas, 2005a, p. 20-23, 40; Banco Central de Reserva del Perú, 2005a§). Mineral and petroleum and derivatives exports in 2004 (about $7.6 billion) increased by about 43.4% compared with those of 2003 (almost $5.3 billion). In 2004, Peru's economy benefited from higher prices for its mineral exports and increased demand for base metals used in construction and manufacturing in, in order of importance, the United States, China, and South Asia. The higher prices for Peru's major mineral exports were, in order of value, gold, which increased to $410.0 per troy ounce from $363.8 per troy ounce (12.7%) in 2003; silver, $6.7 per troy ounce from $4.9 per troy ounce (36.7%); lead, $0.627 per pound from $0.353 per pound (77.6%); copper $1.180 per pound from $0.726 per pound (62.5%); tin, $3.937 per pound from $2.447 per pound (61.0%); and zinc, $0.253 per pound from $0.203 per pound (24.6%). These higher prices for exported precious and base metals more than offset the negative impact of higher prices for imported crude oil, which increased to $41.0 per barrel from $32.1 per barrel in 2003 (27.7%). Peru's foreign debt amounted to about $34.6 billion, and its net international reserves increased by $2.5 billion to $12.7 billion from $10.2 billion in 2003 (Banco Central de Reserva del Perú, 2005a§, b§; Ministerio de Energía y Minas, 2005a§, b§).

According to the Ministerio de Energía y Minas (MEM), the country's current metal and oil and gas reserves and resources offer attractive investment opportunities (table 3; Ministerio de Energía y Minas, 2005a, p. 52-53). The privatization of state-owned firms and the formation of joint ventures and consortia in the mining and fuels industries provided a continuous committed capital flow of about $10.0 billion total between 1992 and 2007. In Peru, investment by mining companies in precious- and base-metal and polymetallic projects increased to $570 million in 2004 from $462 million in 2003. Foreign domestic investors have invested in Peru because it has an open market economy and the Government guarantees property ownership, investments, free remittance of profits, and capital repatriation and provides equal treatment with domestic investors. The Government continued to reduce subsidies and tariffs, freed foreign exchange and interest rates, liberalized international investment rules, simplified the tax code, and established concessions for construction and operation of public infrastructure, such as, in order of magnitude, telecommunications, roads, ports, and airports. The Government continued its policy of fiscal austerity and increased investment in social development to establish better relationships with the local communities. Finally, the Government wanted to maintain its role of regulator, promoter, and overseer, thus minimizing interferences with the private sector (Banco Central de Reserva del Perú, 2005a§; Ministerio de Energía y Minas, 2005b§).

In 2004, foreign direct investment (FDI) inflows into Latin America and the Caribbean increased to $56.4 billion, or by 44.2%, compared with $39.1 billion in 2003. FDI inflows into South America also increased to $34.1 billion, or by 45.7%, compared with $23.4 billion in 2003. In the Andean Community (Bolivia, Colombia, Ecuador, Peru, and Venezuela), FDI decreased to $6.2 billion, or by 17.3%, compared with $7.5 billion in 2003. This downturn mainly reflected declines in flows to Bolivia and Venezuela because both were beset by political upheaval and to Ecuador because of the completion of its hydrocarbon projects in 2002. In 2004, Peru's hydrocarbon sector received $1.8 billion compared with $1.4 billion in 2003 (Economic Commission for Latin America and the Caribbean, 2005a§–c§).

In 2004, the MEM reported that Peru received more than $3.5 billion of FDI in the minerals sector (mining, $1.7 billion; gas, $1.6 billion; and petroleum, $200 million) compared with more than $2.5 billion in 2003 (Banco Central de Reserva del Perú, 2005a§; Ministerio de Energía y Minas, 2005b§).

According to the Comisión Nacional de Inversiones y Tecnologías Extranjeras (CONITE) and Agencia de Promoción de la Inversión Privada (ProInversión), Peru's flows of private investment into its economy since 1993 continued to increase to $15.7 billion in 2004 from $15.2 billion in 2003, $14.9 billion in 2002, and $14.6 billion in 1993, which was partly owing to the country's stability on the economic front; to its natural resources, mainly base and precious metals, and oil and gas; and to the positive effect of the global commodity price increases. National and international corporations have been very active in recent years (Banco Central de Reserva del Perú, 2005, p. 5; Comisión Nacional de Inversiones y Tecnologías Extranjeras, 2005§).

CONITE reported that since July 19, 1991, when the privatization program began, the Peruvian Government has privatized more than 235 state-owned corporations and netted almost $11 billion, and domestic and foreign investors have committed new annual

[1]Where necessary, values have been converted from Peruvian new soles (S/.) to U.S. dollars (US$) at the rate of S/.3.260=US$1.00.
[2]References that include a section mark (§) are found in the Internet References Cited section.

investments of about $10 billion for the period 2005-2007. By the end of 2004, the Government had privatized most of its assets in the following sectors: mining, 95%; manufacturing, 90%; electricity and hydrocarbons, 70% each; and agriculture, 35% (Banco Central de Reserva del Perú, 2005a§; Comisión Nacional de Inversiones y Tecnologías Extranjeras, 2005§; Ministerio de Energía y Minas, 2005b§).

In the mining sector, some tenders were still pending for the following large projects in 2005-06: Empresa Minera del Centro del Perú S.A.'s (Centromín's) copper deposits at Michiquillay and La Granja, Department of Cajamarca, and the coal deposits at Alto Chicama, Department of La Libertad. Some acquisitions were made, such as the phosphates and brine at Bayovar, Department of Piura, and the Cajamarquilla zinc refinery, Department of Lima, by the Grupo Votorantim Metais S.A. of Brazil in late 2004. Votorantim acquired 99% of the Cajamarquilla refinery for about $210 million and was planning to increase its zinc output to 260,000 metric tons per year (t/yr) from 130,000 t/yr with an additional investment of $200 million by 2006 (Votorantim Metais S.A., 2005§; M.A.,Yepez, Mineral Economist, U.S, Embassy, Economic Section, written commun., September 15, 2005).

Several mining prospects for, in order of importance, gold, copper, coal, and industrial minerals had yet to be privatized. Government officials estimated that Centromín's privatization could generate about $2.1 billion and that privatization earnings could be increased by additional sales of Government assets, such as the Talara oil refinery and the Mantaro hydroelectric complex, which were valued at almost $2 billion, possibly by late 2005 (Comisión Nacional de Inversiones y Tecnologías Extranjeras, 2005§).

Considering China's increasing demand for metals and minerals such as copper, which was expected to increase to 6 million metric tons (Mt) by 2010 from 4 Mt in 2004 and 2 Mt in 2003 to satisfy this consumption, two Chinese companies, Baosteel Co., Ltd. (Baosteel) and Aluminum Corporation of China Limited (Chalco) were planning to have joint ventures with Latin America's leading copper mining companies, such as Companhia Vale do Rio Doce (CVRD) of Brazil, Corporación Nacional del Cobre (Codelco) of Chile, and Sociedad Minera Cerro Verde S.A.A. of Perú (Latin Trade, 2004).

China Minmetals Company planned to invest in metals and minerals mainly in Brazil, Chile, and Peru. In Peru, additional investments ($4.1 billion) were expected in projects with advanced exploration and environmental assessment work, such as Las Bambas ($1.5 billion, copper reserves 500 Mt) and Los Chancas copper deposits (Department of Apurimac), which was owned by Xstrata Plc. of Switzerland and Southern Perú Copper Corporation Sucursal del Perú (SPCC) (a subsidiary of Grupo Mexico S.A. de C.V.) (Central Reserve Bank of Peru, 2005, 21-24; M.A.,Yepez, Mineral Economist, U.S. Embassy, Economic Section, written commun., August 23, 2005).

Other planned investments in copper deposits included Centromín's Rio Blanco ($800 million to produce copper by 2008) and Tambogrande ($526 million planned, 17 years copper mine life), and Perú Copper Syndicate Co.'s Toromocho ($1.2 billion, reserves 1.6 billion metric tons). SPCC was planning to invest $600 million in additional exploration and to improve efficiencies in Cuajone and Toquepala, and Cerro Verde was planning to increase its copper output to 300,000 t/yr from 100,000 t/yr with an investment of $850 million by 2006. Other prospects included the San Gregorio zinc project of Sociedad Minera El Brocal S.A.A. in the Department of Cerro de Pasco, the Minas Carachugo gold-and-silver mineralization of Minera Yanacocha S.R.L. (MYS) [Newmont Mining Corp. of the United States (51.35%), Compañía de Minas Buenaventura S.A.A. (43.65%), and the World Bank's International Finance Corporation (5%)] in the Department of Cajamarca, and the Magistral copper-molybdenum-silver deposit of Minera Ancash Cobre S.A. in the Department of Ancash. Magistral is located in the same geologic trend as that of Compañía Minera Antamina S.A.'s (CMA) Antamina base-metal mine (Instituto de Ingenieros de Minas del Perú, 2004b, p. 38; Asesoría de Prensa, Ministerio de Energía y Minas, written commun., November 4, 2004; M.A.,Yepez, Mineral Economist, U.S, Embassy, Economic Section, written commun., August 8, 2005).

Government Policies and Programs

Peru offers a legal framework favorable to national and foreign investors by means of such Constitutional Mandates as Legislative Decree No. 662 (promotion of foreign investment), which provides unrestricted access to all economic sectors; Legislative Decree No. 757 (framework for the development of private investment), which pertains to the private investment growth; and Texto Unico Oficial (TUO) approved by Supreme Decree No. 059-96-PCM, which promotes private investment in public infrastructure and utility works. Within the framework of Decree law No. 708 of November 1991 (promotion of investment in mining), Legislative Decree No. 818 of April 1996 (incentives for investing in natural resources), and Supreme Decree No. 162-92-EF of October 1992 (rules guaranteeing foreign investment), more than 250 domestic stability and guarantee contracts have been signed since 1993 (Central Reserve Bank of Peru, 2005, 13-14; Comisión Nacional de Inversiones y Tecnologías Extranjeras, 2005§).

Supreme Decree No. 014-92-EM of June 1992 (the general mining law) and Legislative Decree No. 868 of May 1996 (Texto Unico Oficial) provide guaranteed protections to mining ventures and contracts under the Peruvian Civil Code. Consequently, such ventures and contracts are immune from unilateral changes by any governmental authority in Peru without an appropriate legal or administrative remedy or arbitration by the Convenio Constitutivo del Centro Internacional de Arreglo de Diferencias Relativas a Inversiones (Comisión Nacional de Inversiones y Tecnologías Extranjeras, 2005§).

Additionally, Peru enacted Supreme Decree No. 047-2002-EF of April 2002 (import duties for capital goods) to reduce the duties paid to 7% from 20% and 12% on capital goods to be used in exploration and production of certain minerals, such as oil and gas in the Amazon region. Supreme Decree No. 135-2002-EF of April 2002 was enacted to reduce duties paid to 4% from 7% on certain capital goods linked to agricultural exports under the Andean Trade Preferences and Drug Eradication Act. The capital, goods, and services linked to minerals exploration benefited from the elimination of 18% sales tax when law No. 27623-EF was enacted in January 2002. Supreme Decree No. 015-2004-PGM of January 2004 (legal framework for decentralization) was established to use revenues from mineral production to maximize the well-being of the local communities through economic growth, environmental protection, and social development in a sustainable way (Instituto de Ingenieros de Minas del Perú, 2004a, p. 30-31; 2004b, p. 20-21; Banco Central

de Reserva del Perú, 2005a§, b§; Comisión Nacional de Inversiones y Tecnologías Extranjeras, 2005§; Ministerio de Energía y Minas, 2005b§).

All these laws provide a legal stability system that guarantees that the basic rules and regulations, such as no discriminatory treatment for domestic or foreign investors, free availability and remittance of foreign currency, and tax on dividends, will not be changed. The Peruvian Constitution establishes equal protection for domestic and foreign investors who may enter into agreements with the Government and guarantees free access, possession, and disposal of foreign currency. Hydrocarbon law No. 26844 of 1997 of May 1997 eliminated the exclusive rights of state-owned Petróleos del Perú S.A. to control the secondary recovery of crude oil, refining, and imports and subsequent resale of petroleum and byproducts.

The Peruvian laws have attempted to ensure more-favorable minerals and crude oil and gas exploration and production contract terms for investors, which has resulted in an increased number of domestic and foreign companies that have expressed interest in participating in exploration, production, and distribution of natural gas and petroleum contracts with Perupetro S.A. and of mineral properties with Centromín (table 2).

Legal procedures to obtain mining rights were made easier by the enactment of complementary legislation Supreme Decree No. 018 of July 9, 1992. The Government relinquished exclusive control over exploration, mining, smelting, and refining of metals and fuel minerals. Individuals and private companies are allowed to hold mining permits in Peru. In the legal framework for investment and taxation, no distinction is made among domestic and foreign investors, corporations, joint ventures, and consortia formed in Peru or abroad. Municipalities and Regional governments in areas where mineral resources (metals and industrial minerals) are exploited will receive 50% of the taxes collected to be invested in education and social programs (health, housing, and others) in conformance with the Canon Minero (Ministry Resolution No. 266-2002-EF/15 of May 1, 2002). The remittance of dividends, depreciation, and royalties abroad has no restrictions. Contracts can be signed by investors, and the Government guarantees the stability of legal commitments and taxes. To increase protection of investors' interests, Peru signed agreements with the World Bank's Multilateral Investment Guarantee Agency in April 1991, which was authorized by Legislative Decree No. 25312 and with the Overseas Private Investment Corporation in December 2002, which was authorized by Legislative Decree No. 25809 (Comisión de Promoción de la Inversión Privada, 2004, p. 6; Comisión Nacional de Inversiones y Tecnologías Extranjeras, 2005§).

Peru charges to the mining sector a royalty of between 1% and 3% on sales. Because this system could jeopardize investments in exploration, the mining sector proposed that royalties be assessed on profits rather than on sales (El Comércio/Economía, 2005§).

Petroperú S.A. manages energy-related activities for the Government. In principle, all mineral and geothermal resources belong to the state, which grants concessions for use by the private companies and individuals. The administration and management of all mining legal processes and concessions rest with the executive branch.

Environmental Issues

The Dirección General de Asuntos Ambientales (DGAA) of the MEM has the responsibility to address environmental problems that result from energy and mining activities and is mandated to implement the laws and regulations of the environmental legal framework, such as Legislative Decree No. 613 of September 1990 (the environmental code) and Supreme Decree No. 016-93-EM of April 28, 1993 (the environmental regulation) (Ministerio de Energía y Minas, 2005b, p. 70-72).

The sustainable development model for the mining and energy sectors began in 1993 with regulations and procedures for the gradual reduction of pollution, which include economic development policies and environmental protection. The mining industry must comply by adjusting its ongoing operations to permissible effluent levels and its new operations by using cleaner technologies. The DGAA evaluates and proposes the environmental regulations for the mining and energy sectors, which include the maximum emission levels that are compatible with the internationally accepted limits set by the United Nations and the World Bank, approves environmental impact assessments for new operations and environmental adjustment and management programs for ongoing ones, and administers the national environmental information system. The MEM is authorized to handle environmental affairs in the minerals sector, such as establishing the environmental protection policy and maximum allowable levels for effluents, signing environmental administrative stability agreements, overseeing the impact of operations determining responsibilities, and imposing administrative sanctions (Ministerio de Energía y Minas, 2005b, p. 72-75). The mining and oil companies are increasing their efforts to protect the environment, and oil companies, in particular, are under pressure because the number of operations in the Amazon Rain Forest, which is one of the world's most sensitive ecosystems, is increasing.

The Rio Blanco and Tambogrande projects were the target of protestors who were demonstrating against their development. MYS's Cerro Quilish prospect and development of the gold deposit at the Yanacocha Mine were stalled by the city government of Cajamarca, which wanted to protect the city's major watershed by issuing Municipal Ordinance 012, which declared that the Cerro Quilish area was a "protected area." As a result, Newmont was unable to proceed with the Cerro Quilish project. The acquisition of Las Bambas by Xstrata for $121 million was strongly opposed during the auction process. About $46 million of that total was a social contribution to the community, and the proactive stand of Xstrata and Las Bambas community relations strategy was remarkable and successful in overcoming opposition to the projects (U.S. Embassy, Lima, Peru, written commun., May 18, 2005).

Oxfam America continued to support communities affected by mining in Peru and said "mining should demonstrate greater respect for the human rights of such communities." The local La Coodinadora Nacional de Comunidades del Perú Afetadas por la Minería (CONACAMI) indicated that "it has the right to participate and be consulted on mineral policies that involve communities affected by mining operations" (U.S. Embassy, Lima, Peru, written commun., May 18, 2005). Oxfam's position could, however, affect future flows of mineral investments into Peru.

Production

In 2004, Peruvian minerals (metals, industrial minerals, and fuels) production value amounted to $5.1 billion compared with $4.8 billion in 2003. Mining and fuel production grew by 5.4% as a result of larger volumes of metals (5.3%) and fuel output (7.1%). The increase of mineral outputs (content) was mainly led by tin (68.3%), molybdenum (49.0%), copper (22.9%), and iron (21.9%) and to a lesser extent by silver (4.8%), natural gas (3.3%), crude oil (3.0%), and gold (0.3%) compared with those of 2003 (Ministerio de Energía y Minas, 2005a, p. 14-27; Banco Central de Reserva del Perú, 2005a§).

In 2004, metal prices were driven upwards because of the higher demands associated with increased world economic activity, such as in, in order of importance, China, the United States, and other Asian countries. Peruvian copper production increased because of higher demand and higher content of ores processed by the Antamina Mine, the reopening of BHP Billiton Tintaya S.A.'s Tintaya Mine in October 2003, and increased processing capacity at the SPCC's Toquepala plant; iron ore production increased in response to higher demand in China and other economies in the Asian region for construction and higher steel output, which had a positive effect on higher molybdenum production. In silver output, such companies as Compañía de Minas Buenaventura S.A.A., Compañía Minera Atacocha S.A., El Brocal, PERUBAR S.A., and Volcan Compañía Minera S.A.A. were more active, and gold production was slightly higher than in 2003 because Minera Yanacocha S.R.L., which was the main gold producer, and medium-sized gold mines exceeded their initial production goals. Yanacocha increased its output levels mainly as a result of technological innovations in its gold recovery process, and higher international prices allowed medium-sized mines and small producers to mine lower-grade ores. Minsur S.A., which was the only tin producer in Peru, increased its production after incorporating new equipment, automatic feed of reagents, and new flotation cells, which increased the tin content in concentrates. Hydrocarbon production increased by 7.1%; this increase was mainly a reflection of the Camisea gas project (Pluspetrol S.A.'s Norte-Block 88), which started commercial production in August. In the second half of 2003, there was less rainfall in the mountains, so most of the natural gas liquids and butane substituted for the decreased hydroelectric energy output (table 1; Ministerio de Energía y Minas, 2005a, p. 2-3, 27; Banco Central de Reserva del Perú, 2005a§).

Trade

In 2004, mining was the main exporting sector of the country. Peru's main mineral exports were copper ($2.45 billion), gold ($2.4 billion), zinc ($577 million), lead ($398 million), tin ($299 million), silver ($260 million), and iron ($129 million) (Ministerio de Energía y Minas, 2005a, p. 8-15; Banco Central de Reserva del Perú, 2005a§). The value of all mining products exported during the year was more than 55% of all exports ($12.6 billion); total exports were $9.0 billion in 2003 and $7.7 billion in 2002. Mineral exports amounted to $7.0 billion (petroleum and derivatives, $670 million) compared with $5.2 billion (petroleum and derivatives, $626 million) in 2003 and $4.3 billion (petroleum and derivatives, $451 million) in 2002. Peru's total mineral exports, which included petroleum and derivatives, amounted to more than 60% of its total exports in 2004. Total mineral imports, which were mostly petroleum and derivatives, however, increased by about 28.6% to $1.8 billion compared with $1.4 billion in 2003 and $975 million in 2002. Total imports increased by about 18.1% to $9.8 billion compared with $8.3 billion in 2003 and $7.4 billion in 2002 and generated a surplus of $2.8 billion compared with a surplus of $836 million in 2003 and a deficit of $292 million in 2002 (Sociedad Nacional de Minería, Petróleo y Energía, 2005a, p. 32; b, p. 28; c, p. 17; Banco Central de Reserva del Perú, 2005a§, b§).

In 2004, the United States (26.6%), the United Kingdom (15.1%), China (11.0%), Japan (5.5%), and Chile (4.7%) were Peru's leading mineral consumers. The United States, China, and Chile were the main importers of gold, copper, and molybdenum, respectively. Peru sold about 6% of its exports to the other members of the Mercado Común Andino (Ancom) (Bolivia, Colombia, Ecuador, Peru, and Venezuela); about 3% was sold to the Mercado Común del Cono Sur (Mercosur) countries (Argentina, Brazil, Paraguay, and Uruguay and associate members Bolivia and Chile); and 15% to other Latin American countries. Peruvian mineral exports could increase if the negotiations between Ancom and Mercosur were to lead to a South American free trade agreement and a possible free trade agreement between the United States and Peru in the near future (Ministerio de Energía y Minas, 2005a, p. 31; Sociedad Nacional de Minería, Petróleo y Energía, 2005c, p. 55; Banco Central de Reserva del Perú, 2005a§).

Structure of the Mineral Industry

The structure of the Peruvian mineral industry continued to change owing to the privatizations and joint-venture projects. The establishment of consortia in such deregulated industries as electricity, oil and gas, and telecommunications; joint ventures in construction, energy, and mining projects; and infrastructure management were becoming a common practice in Peru. According to the Ministerio de Energía y Minas (2005a), Peru was the seventh most attractive area for investments in exploration after, in order of investment attractiveness ranking, Tasmania (Australia), Nevada and Alaska (USA), Northwest Territories (Canada), Western Australia, and Indonesia (Instituto de Ingenieros de Minas del Perú, 2004a, p. 15; b, p. 20; Ministerio de Energía y Minas, 2005a, p. 20; Fraser Institute, The, 2004§).

The new operating process, which was the result of the privatization and joint-venture projects, incorporated policies that deal with economic and societal development issues and with environmental protection in a sustainable way. Private local interests owned most of the medium- and small-sized mining operations. More than 250 foreign mining companies have been established in Peru since 1990 (table 2).

Commodity Review

Metals

Copper.—Peru's copper (content in concentrates) output increased to almost 1.04 Mt compared with 842,578 metric tons (t) in 2003. This increase was mostly the result of increased output mainly from the CMA's Antamina Mine, BHP Billiton p.l.c.'s Tintaya Mine, and SPCC's Cuajone and Toquepala copper mines. Other mining companies also contributed to this increased copper output, such as Cerro Verde's Cerro Verde Mine; expansions at Volcan's San Cristobal Mine, Doe Run Peru S.R. Ltda.'s Cobriza Mine, Compañía Minera Condestable S.A.A.'s Condestable Mine, Compañía Minera Atacocha S.A.'s Atacocha Mine, and several small- and medium-sized mines contributed as well. The country's copper metal exports in 2004 totaled about 940,500 t valued at $2.4 billion compared with 787,300 t valued at $1.3 billion in 2003; this value was 8.3% higher than that of 2003 as a result of the copper price increase to $1.180 per pound of copper in 2004 from $0.726 per pound in 2003 (Ministerio de Energía y Minas, 2005a, p. 16-17; Banco Central de Reserva del Perú, 2005a§, b§).

SPCC continued to be the leading copper producer in the country with a total output of 397,366 t of copper, which included 355,242 t in concentrates from Cuajone 1 (194,389 t) and Toquepala 1 (160,853 t), and 42,124 t of cathode copper, which was produced by solvent extraction-electrowinning (SX-EW) from Totoral (29,580 t), Simarrona (7,043 t), and Cocotea (5,501 t) (about 38.4% of Peru's total copper concentrate and lixiviates produced in 2004). Copper metal output at SPCC's Ilo refinery in the Department of Moquegua decreased to 280,676 t in 2004 from 284,001 t in 2003, or by almost 1.2% (Ministerio de Energía y Minas, 2005a, p. 4-5).

The CMA's (BHP Billiton, 33.75%; Noranda Inc., 33.75%; Teck Cominco Ltd., 22.5%; and Mitsubishi Corp., 10%) Antamina Mine was the leading copper concentrate producer in the country with a total output of 370,957 t in 2004. CMA's operations consisted of an open pit, a 70,000-metric-ton-per-day concentrator, and a 302-kilometer (km) slurry pipeline, port facilities in Huarmey, a new access road, powerline, and town site. CMA owned and operated the Antamina Mine, which was located in the Ancash Region. Antamina's revised proven and probable ore reserves were calculated to be 559 Mt at grades of 1.24% copper, 1.03% zinc, 13.71 grams per metric ton silver, and 0.029% molybdenum, or 1.8% equivalent copper (Ministerio de Energía y Minas, 2005a, p. 5, 16).

Cerro Verde's SX-EW plant at the Cerro Verde copper mine produced 88,493 t of cathode compared with 87,327 t in 2003. BHP Billiton Tintaya's SX-EW plant reported an output of 36,381 t of cathode compared with 36,116 t in 2003. Doe Run Peru produced 57,632 t of cathode compared with 61,847 t in 2003 (Ministerio de Energía y Minas, 2005a, p. 7, 16).

SPCC was planning to build a new smelter that will produce anodes instead of blister in Ilo during fiscal year 2005-06; processing costs will decrease to $1,146 per metric ton ($0.52 per pound) of copper compared with $1,190 per metric ton ($0.54 per pound) in 2003. The new smelter will process 1.8 Mt of copper concentrates, which will be an increase of 59.1% compared with the current (2004) capacity of 1.2 Mt. Ilo's refinery will be expanded to 330,000 t/yr from 280,000 t/yr in 2004. These improvements were the result of the completion of the Toquepala Mine's expansion owing to the identification of a massive sulfide ore body, which increased the mine's proven and probable reserves to 770 Mt at grades of 0.74% copper and 0.08% molybdenum and 1.931 billion metric tons (Gt) of leachable reserves at a grade of 0.20% copper (Ministerio de Energía y Minas, 2005a, p. 4-6, 20).

Gold.—In 2004, the increased gold output was a result of better prices in the open market and higher production achieved by all types of mine operations, which was 173.2 t compared with 172.6 t in 2003. MYS produced 90.4 t, or 52.0%, of the total gold output in 2004. Other gold producers were Minera Barrick Misquichilca S.A. (20.1 t), Compañía Minera Ares S.A.C. (6.0 t), Minera Aurífera Retamas S.A. (5.2 t), Compañía Minera Aurífera Santa Rosa S.A. (4.1 t), Aruntani S.A.C., Buenaventura, and Consorcio Minero Horizonte S.A. (4.0 t each), and Inversiones Mineras del Sur S.A. (1.7 t) (Ministerio de Energía y Minas, 2005a, p. 18-21).

Gold recovered as a byproduct from the concentrates of Peru's polymetallic mines amounted to 2.2 t. From the total gold output (173.2 t), large- and medium -sized producers reported 158.1 t; small-sized mines, 0.3 t; and an unknown number of placers and "garimperos" (informal individual miners), 14.8 t. Placers accounted for almost 9% of the gold produced in the country. The southeastern Andes have well-known gold placers on the Inambari River and its tributaries. Placer gold was produced mostly in the Inca and the Mariategui Regions and also from rivers and streams throughout the jungle (Ministerio de Energía y Minas, 2005a, p. 17-18).

Iron Ore.—Shougang Hierro Perú S.A.A. (a subsidiary of China's Shougang Corp.) continued to be Peru's sole iron ore producer in Marcona, Department of Ica. Mine output increased to 4.3 Mt of iron content in 2004 from 3.5 Mt in 2003. The iron ore exports amounted to 5.9 Mt at a value of $128.4 million compared with 5.8 Mt at a value of $94.1 million in 2003, which was an increase of 36.5% in value compared with 2003. The domestic consumption amounted to 300,000 t of iron ore, which remained about the same level as that of 2003. Shougang increased its production, in part, to satisfy the demands of its clients such as China whose economy grew 9.0% in 2004 and was expected to grow by 7.5% in 2005 (Ministerio de Energía y Minas, 2005a, p. 31-32; Banco Central de Reserva del Perú, 2005a§).

Lead, Silver, and Zinc.—In 2004, the Peruvian zinc industry produced 1.2 Mt of zinc in concentrates and was the world's second ranked producer after China (Ministerio de Energía y Minas, 2005a, p. 72; Plachy, 2005). This level of production, however, represented a decrease of almost 12% compared with the output of 2003. The zinc decrease was the result of lower outputs from Antamina, Atacocha, and other zinc mines. Of the total output, the main producers' contributions were CMA and Volcan (19% each), Empresa Minera Los Quenuales S.A. (15%), Compañía Minera Milpo S.A. (8%), Atacocha and El Brocal (5% each), Empresa Administradora Chungar S.A.C. (4%), and others (25%) (Ministerio de Energía y Minas, 2005a, p. 71-73, 76-77, 82-83).

The country's total silver content output increased to 3,060 t in 2004 from 2,921 t in 2003. Peru continued to be the second ranked producer in the world after Mexico (Hilliard, 2005; Ministerio de Energía y Minas, 2005a, p. 21). Peru produced 306,211 t of lead in concentrates compared with 308,874 t in 2003 and was the fourth ranked producer in the world after China, Australia, and the United

States (Ministerio de Energía y Minas, 2005a, p. 78; Smith, 2005). Exports of zinc, lead, and silver were valued at about $577 million, $389 million, and $260 million, respectively, compared with $529 million, $201 million, and $191 million, respectively, in 2003 (Ministerio de Energía y Minas, 2005a, p. 31; Banco Central de Reserva del Perú, 2005a§, b§).

In 2004, Volcan was the leading zinc producer in the country with an output of 235,254 t of zinc, 60,731 t of lead, and 351.1 t of silver from its operations in the Yauli mining district, the San Cristobal base-metal mine in the Department of Junin, and the Cerro de Pasco property in the Department of Cerro de Pasco. Los Quenuales produced 187,189 t of zinc, 25,246 t of lead, and 21.5 t of silver from the Iscaycruz and the Yauliyacu Mines and became Peru's third ranked private zinc producer after Volcan and CMA (Ministerio de Energía y Minas, 2005a, p. 71-73).

Refined metals were reported by Doe Run Peru—118,970 t of lead, 1,100 t of silver, and 67,954 t of zinc from La Oroya complex; Sociedad Minera Refinería de Zinc Cajamarquilla S.A.—30.4 t of silver and 127,739 t of zinc from the Cajamarquilla refinery; and SPCC—118.9 t of silver from its refining operations in Ilo. Peru's silver metal production increased to 1,250 t from 1,147 t in 2003 (table 1; Ministerio de Energía y Minas, 2005a, p. 23-24, 30-32, 38-40).

Tin.—Production from Minsur's San Rafael Mine in the Mariategui Region was 41,613 t in concentrate compared with 40,202 t in 2003 and 38,815 t in 2002. Minsur's tin smelting and refining operations in Pisco, which is located south of Lima, produced 40,624 t of metal compared with 39,181 t in 2003 and 35,828 t in 2002, or a 3.7% and 13.4% increase, respectively, compared with 2003 and 2002. These increases were due to better market conditions and the increase in the price of tin to $3.94 per pound from $2.45 per pound in 2003 as a result of higher consumption than supply worldwide. Peru was the leading tin producer in Latin America followed by Bolivia and Brazil and the third ranked tin producer in the world after China and Indonesia. Minsur, which was the only fully integrated tin supplier in Peru, produced 14.2% of world's output and exported 40,400 t valued at $350.7 million in 2004, which was an increase of more than 66% compared with that of 2003 (Kettle, 2004; Ministerio de Energía y Minas, 2005a, p. 47-48; Banco Central de Reserva del Perú, 2005a§).

Industrial Minerals

Cement.—According to the International Cement Review and the domestic Asociación de Productores de Cemento, Peru's total cement production in 2004 was almost 4.6 Mt compared with 4.0 Mt in 2003. Five main cement companies had an operating capacity of 5.8 Mt/yr. Cementos Lima S.A. (CLSA) was the leading cement producer and produced about 3.0 Mt of cement, or more than 65%, of Peru's total cement output; CLSA's Atocongo plant had a production capacity of about 3.5 Mt/yr and drew from nearby limestone quarries. Cementos Pacasmayo S.A.A. was the second ranked cement producer and accounted for about 17% of total production; it had a production capacity of 1.0 Mt/yr. Cemento Andino S.A. was the third ranked cement producer and accounted for 13% of total production; it had a production capacity of 0.8 Mt/yr. Cementos Yura S.A. was the fourth ranked company and had a production share of 3%. Cemento Sur S.A. was the fifth ranked company and had a production share of about 2%. Yura and Sur had production capacities of 300,000 t/yr and 200,000 t/yr, respectively (International Cement Review, 2004; Pflucker, 2004, p. 6; Ministerio de Energía y Minas, 2005a, p. 62-64).

Phosphate Rock.—Empresa Minera Regional Grau Bayóvar S.A.'s (Grupo Votorantim Metais S.A.) phosphate deposits (Bayovar project) produced 37,760 t of phosphate ore compared with 31,600 t in 2003. The Bayovar project comprises 150,000 hectares of phosphate and brine and has proven reserves of 820 Mt of phosphatic rock equivalent to 260 Mt of rock phosphate with 30% of P_2O_5 content. The estimated investment to develop Bayovar was $300 million. As a consumer of sulfuric acid and producer of fertilizer, the Bayovar project could be developed competitively because it is located in a valley of great agricultural potential and tremendous export opportunities to the Asia and Pacific region via the Port of Paita. The 90,000-t/yr phosphate plant that was operated by Grau Bayóvar produced 13,870 t of P_2O_5 in 2004 (Ministerio de Energía y Minas, 2005a, p. 46).

Mineral Fuels

Coal.—Peru's largest coal deposits were at Alto Chicama, which is located 140 km north of Trujillo in La Libertad Region. Other coal deposits occur in the Cuenca del Santa in the Maranon Region and the coal basins of Goyllarisquizga and Hatun Huasi in the Caceres Region of central Peru. In 2004, according to the Ministerio de Energía y Minas (2005a§), Peru's recoverable coal reserves were estimated to be 1.1 billion metric tons, and coal production was relatively small (about 22,350 t) compared with an estimated consumption of 1.1 Mt (U.S. Energy Information Administration, 2005§).

Natural Gas and Petroleum.—In 2004, according to the Ministerio de Energía y Minas (2005a§), Peru's recoverable (proven and probable) and possible crude oil reserves were estimated to be 5,864.1 million barrels (Mbbl); LNG, 1,412.5 Mbbl; and natural gas, 844 billion cubic meters (29.8 trillion cubic feet). The leading gasfields were the Aguaytia, which is located about 41 km west-northwest of Pucallpa and had proven reserves of 8.5 billion cubic meters (301 billion cubic feet) of gas and 9 Mbbl of natural gas liquids (NGL) and the Camisea's two gasfields (Cashiriari and San Martin), which are located in the Ucayali Basin in the Department of Cusco and had 250 billion cubic meters (8.7 trillion cubic feet) of proven reserves, which included 600 Mbbl of NGL. Natural gas production increased to 860 million cubic meters from 523 million cubic meters in 2003 and was produced by Aguaytia S.A. (43.6%), Pluspetrol S.A. (23.2%), Petrotech del Perú S.A. (13.4%), Petróleo Brasileiro S.A. (Petrobrás) (10.1%), and others (9.7%). Petrobrás through Petrobrás Energía S.A. acquired exploration and production rights for natural gas and petroleum in Lots 57 and X, respectively (Ministerio de Energía y Minas, 2005b, p. 2-15; 2005a§; Petróleo Brasileiro S.A., 2005§; U.S. Energy Information Administration, 2005§).

Commercial operation at the Camisea gasfields started in August 2004. Investments to develop and produce, transport, and distribute natural gas from the Camisea fields were made as follows: the Upstream Project to develop and produce natural gas, $670

million; the Transportation Project to transport natural gas and liquids to Lima through pipelines, $820 million; and the Distribution Project for the distribution network in Lima, $170 million (Ministerio de Energía y Minas, 2005b, p. 25; 2005a§).

Since the end of 2000, the following approvals were made: for the Upstream Project, Peru's Comité Especial del Proyecto Camisea approved the upstream consortium that was led by Argentina's leading oil producer Pluspetrol S.A. (Pluspetrol Perú Corp. S.A. as operator) (36%) and that included Hunt Oil Company of the United States [Hunt Oil Company of Peru L.L.C. (Hunt Peru) (36%)], SK Corp. of the Republic of Korea (18%), and Tecpetrol del Perú S.A.C. (wholly owned by Argentina's Techint Group) (10%). The upstream consortium will produce natural gas during the 40 years of operations (exploration and production) at Camisea. Supreme Decree No. 021-2000-EM of December 7, 2000 (license to exploit Camisea), and the Comisión de Promoción de la Inversión Privada approved the exploitation contract between Perupetro and the consortium led by Pluspetrol.

For the Transportation Project, Peru issued a tender for a 33-year contract to construct and operate two pipelines, one for natural gas (714 km) and one for NGL (540 km). Both would run parallel from the Camisea fields, 341 km east of Lima, to the coast of Peru south of Lima, where the NGL pipeline would enter the terminal plant. The NGL pipeline would transport 50,000 barrels per day (bbl/d) and the natural gas pipeline would move 8.1 million cubic meters (285 million cubic feet) per day. Transportadora de Gas del Perú (TGP) was the Peruvian company in charge of the transportation project. The transportation contract between TGP and the consortium that was led by Argentina's Tecgas N.V. (23.4%) and that included Pluspetrol (Techint Group, 22.2%), Hunt Oil (Hunt Peru, 22.2%), SK (11.1%), the Sonatrach Group of Algeria (11.1%), Tractebel S.A. (Tractebel Electricity & Gas International of Belgium) (8.0%), and Graña y Montero S.A. of Peru (2.0%) (Camisea Project, 2005§).

In 2004, crude oil production increased to 94,120 bbl/d from 91,350 bbl/d in 2003, or by almost 3.0%. Production of petroleum derivatives decreased slightly to 63,525 bbl/d from 64,171 bbl/d in 2003. Peru imported an average of 66,880 bbl/d of crude oil and petroleum products to satisfy its internal consumption of 161,000 bbl/d (Ministerio de Energía y Minas, 2005b, p. 2-15; 2005a§; U.S. Energy Information Administration, 2005§).

Peru's total crude oil production of 34.4 Mbbl in 2004 came from Pluspetrol S.A. (63.8%), Petrobrás (14.2%), Petrotech (13.4%), and others (8.6%) (table 1; Ministerio de Energía y Minas, 2005b, p. 25; 2005b§; Sociedad Nacional de Minería, Petróleo y Energía, 2005c, p. 55). Almost 55% of the country's crude oil production came from the jungle blocks in the Loreto and the Ucayali Regions; the remainder was produced at the coastal and offshore fields in Talara. The country's petroleum reserves were estimated to be about 253 Mbbl in December 2004 (Ministerio de Energía y Minas, 2005a§; U.S. Energy Information Administration, 2005§).

In 2004, the largest oil refinery continued to be Petroperú's La Pampilla, which had a designed capacity of about 100,000 bbl/d. The second largest oil refinery was Petroperú's Talara, which had a design capacity of about 60,000 bbl/d. Other refineries had the following designed capacities: Conchan, 15,500 bbl/d; Iquitos, 10,500 bbl/d; Pucallpa, 3,250 bbl/d; and El Milagro, 1,700 bbl/d. Refinery production came from La Pampilla (47%), Talara (38%), Conchan (7%), Iquitos (5%), Pucallpa (2%), and El Milagro (1%) (Ministerio de Energía y Minas, 2005b, p. 19; Sociedad Nacional de Minería, Petróleo y Energía, 2005a, p. 50).

Reserves

Table 3 lists the Peruvian reserves of major minerals, such as copper, gold, iron ore, lead, molybdenum, silver, and zinc, on or about January 1, 2005. Data are shown in terms of metal contained in ore for the base and precious metals or recoverable quantities of other mineral commodities, which included industrial minerals and mineral fuels. These mineral reserves represent "proven" (measured) and "probable" (indicated) categories and exclude quantities reported as "possible" (inferred). Reserves were defined as being well-delineated and economically recoverable volumes of crude oil and natural gas from wells and minable ore from mines committed to production (Ministerio de Energía y Minas, 2005a, p. 51; 2005a§; U.S. Bureau of Mines and U.S. Geological Survey, 1980).

Annual changes in the assessment of reserves are the result of additions to reserves, deletions from reserves, and production. A complication in Peru has been the production of more than one metal by a large number of mines, thus necessitating close attention to market prices and processing costs for two or more mineral commodities simultaneously to determine production as coproducts (share costs) or/and byproducts (credits to revenues).

Reserves of the leading base and precious metals increased significantly—gold in Alto Chicama and copper ore during the expansion of the Cerro Verde, the Cuajone, the Tintaya, and the Toquepala Mines. Reserves of major metals are distributed unevenly throughout Peru and were influenced mostly by mineralization of the Precambrian Cordillera and the Coast Ranges where several districts dominated the reserves position in terms of proven and probable (minable) reserves of major metals.

Infrastructure

Peru had 3,462 km of railways and 78,230 km of roads, of which 10,452 km was paved and 67,778 km was unpaved. Peru had 8,810 km of waterways—8,600 km of navigable tributaries of the Amazon River system and 210 km of waterways into Lake Titicaca. Also, a petroleum depot at Bayovar serviced the 800-km northern Peru crude oil pipeline. Crude oil was transported through a 1,557 km pipeline; natural gas and NGL, 388-km dual pipelines; and refined products, 13 km. Important mineral industry ports included Callao, Chimbote, Ilo, Matarani, Paita, Puerto Maldonado, Salaverry, San Martin, San Nicolas, and Talara on the Pacific Ocean and Iquitos Pucallpa and Yurimaguas on the Amazon River and its tributaries. Peru had an installed electricity-generating capacity of 5,050 megawatts (MW), about 80% of which was provided by hydroelectric plants. The Peruvian Government raised about $2 billion from the privatization of its electrical sector and committed to an investment of about $20 million to install an additional 1,006 MW of capacity in the immediate future. The energy mix, by source, was hydro (74.5%), fossil fuel (24.5%), and others (1.0%) (Ministerio de Energía y Minas, 2005b§; U.S. Central Intelligence Agency, 2005§).

Outlook

Peru's economic and legal stability has attracted high levels of investment, and recent economic indicators point to continued economic growth. The country reduced its fiscal deficit to 1.4% of its GDP from 1.9% in 2003; this action allowed Peru to maintain its solid economic growth during the past 30 months, which was boosted by the increase of private investment that grew slightly to 15.7% of the GDP from 15.2% in 2003. Peru's net international reserves increased to $11.2 billion from $10.2 billion in 2003, and the country has maintained its country risk index at 287, which was among the lowest of the region; Chile was 75, and Mexico, 174. Latin America had a risk index of 485 in 2004. Changes in legislation will not affect investors and/or corporations who have signed legal stability agreements for a period of 10 years, and in the case of mineral concessions, the term will be subject to the life of the agreement (Banco Central de Reserve del Peru, 2005, p. 11; Comisión Nacional de Inversiones y Tecnologías Extranjeras, 2005§).

The energy, mining, and related industries are expected to continue to attract capital flows via joint ventures and consortia, privatizations, and direct acquisitions. According to CONITE and ProInversión, the privatization process in the minerals sector and FDI in every sector of the Peruvian economy, particularly in the banking and energy industries, are expected to continue to generate additional investments. Higher demand for copper, gold, iron ore, and silver and high metal prices are likely to encourage mining companies to invest in expanding and modernizing their operations. The liquefaction of Camisea's natural gas for exports to China, Mercosur, North American Free Trade Agreement, and other trading partners is expected to increase Peru's mineral exports further (Comisión Nacional de Inversiones y Tecnologías Extranjeras, 2005§; Ministerio de Energía y Minas, 2005b§).

Peru encourages community development and environmental protection based on social responsibility and sustainable development principles. In spite of that strategy, the country is facing political unrest, and the mining industry has been the target of social protest. Several events have impacted the image of the mining industry and caused growing concern about the regional climate for mining investments. At the national level, this trend could reduce the attraction of new investments and preclude the higher mineral output needed for the regional economic development.

References Cited

Banco Central de Reserva del Perú, 2005, Peru—ProInversión—Investment opportunities in Peru, 2004 (September), 42 p.
Brooks, W.E., 2005, Arsenic: U.S. Geological Survey Mineral Commodity Summaries 2005, p. 24-25.
Carlin, J.F., Jr., 2005, Tin: U.S. Geological Survey Mineral Commodity Summaries 2005, p. 174-175.
Comisión de Promoción de la Inversión Privada, 2004, Perú—Contrato de licencia para la explotación de hidrocarburos: Comité Especial del Proyecto Camisea, October 2005, 120 p.
Edelstein, D.L., 2005, Copper: U.S. Geological Survey Mineral Commodity Summaries 2005, p. 54-55.
Gabby, P.N., 2005, Lead: U.S. Geological Survey Mineral Commodity Summaries 2005, p. 94-95.
George, M.W., 2005, Bismuth: U.S. Geological Survey Mineral Commodity Summaries 2005, p. 34-35.
Hilliard, H.E., 2005, Silver: U.S. Geological Survey Mineral Commodity Summaries 2005, p. 150-151.
Instituto de Ingenieros de Minas del Perú, 2004a, Mining—Backbone of the Peruvian economy: MINERÍA, año L, no. 310, October, 50 p.
Instituto de Ingenieros de Minas del Perú, 2004b, Peru—Proexplo 2003: MINERÍA, año L, no. 308, October, 48 p.
International Cement Review, 2004, Peru—Cementos Lima's Atocongo: International Cement Review, October, 14 p.
Latin Trade, [2004], The Brasil/China connection—Growing the perfect trade partnership, *in* East meets West—Growing ties between Latin America and Asian Markets: Latin Trade Special Advertising Feature, unpaginated.
Kettle, Peter, 2004, Tin—Hard to predict: Mining Journal, October 8, p. 24-25.
Magyar, M.J., 2005a, Molybdenum: U.S. Geological Survey Mineral Commodity Summaries 2005, p. 112-113.
Magyar, M.J., 2005b, Rhenium: U.S. Geological Survey Mineral Commodity Summaries 2005, p. 134-135.
Ministerio de Energía y Minas, 2005a, Producción minera, *in* Anuario minero del Perú 2004: Ministerio de Energía y Minas, October, 107 p.
Ministerio de Energía y Minas, 2005b, Refinación, *in* Dirección General de Hidrocarburos: Ministerio de Energía y Minas, October, 121 p.
Pflucker, J.M., 2004, Peruvian cement sector—The trend continues: Lima, Peru, BBVA Continental, October 15, 25 p.
Plachy, Jozef, 2005, Zinc: U.S. Geological Survey Mineral Commodity Summaries 2005, p. 188-189.
Smith, G.R., 2005, Lead: U.S. Geological Survey Mineral Commodity Summaries 2005, p. 94-95.
Sociedad Nacional de Minería, Petróleo y Energía, 2005a, Informativo mineroenergético: Petróleo y Energía, año XIII, no. 1, January, p. 57.
Sociedad Nacional de Minería, Petróleo y Energía, 2005b, Informativo mineroenergético: Petróleo y Energía, año XIII, no. 2, February, 61 p.
Sociedad Nacional de Minería, Petróleo y Energía, 2005c, Informativo mineroenergético: Petróleo y Energía, año XIII, no. 3, March, 59 p.
U.S. Bureau of Mines and U.S. Geological Survey, 1980, Principles of a resource/reserve classification for minerals: Geological Survey Circular 831, 5 p.

Internet References Cited

Banco Central de Reserva del Perú, 2005a, Annual report 2004, accessed August 16, 2005, via URL http://www.bcrp.gob.pe/English/Index_eng.htm.
Banco Central de Reserva del Perú, 2005b, Recent developments and prospects (August 2005), Inflation Report, accessed October 14, 2005, at URL http://www.bcrp.gob.pe/ English/WInformes/informes_especiales/200508_Inf_report.pdf.
Camisea Project, 2005, Upstream, transportation, and distribution, Camisea Natural Gas Project, accessed August 5, 2005, at URL http://www.camisea.com.pe/project3.asp.
Comisión Nacional de Inversiones y Tecnologías Extranjeras, 2005, Peru—ProInversión—Investment opportunities in Peru, accessed October 13, 2005, at URL http://www.proinversion.gob.pe/orientacion/estadisticas/cont_1.htm.
Economic Commission for Latin America and the Caribbean, 2005a, Economic survey of Latin America and the Caribbean, accessed October 12, 2005, via URL http://www.eclac.cl/default.asp?idioma=IN.
Economic Commission for Latin America and the Caribbean, 2005b (April), Foreign investment in Latin America and the Caribbean 2004 report, accessed October 12, 2005, via URL http://www.eclac.cl/default.asp?idioma=IN.
Economic Commission for Latin America and the Caribbean, 2005c, Statistical yearbook for Latin America and the Caribbean 2004, accessed October 12, 2005, via URL http://www.eclac.cl/default.asp?idioma=IN.
El Comércio/Economía, 2005, Minería aportará al fisco 75 por ciento más impuestos durante este año (2005), accessed September 12, 2005, at URL http://www.elcomercioperu.com.pe/EdicionOnline/Html/2005-09-12/on/Economia0368380.html.

Fraser Institute, The, 2004, The Annual survey of mining companies 2002/2003, accessed November 9, 2004, at URL ttp://www.fraserinstitute.ca/shared/readmore.asp?sNav= b&id=459.
Grupo Votorantim Metais S.A., 2005, Votorantim Metais adquire refineria de zinco de Cajamarquilla in Peru, accessed October 26, 2005, at URL http://www.votorantim.com/site/en_ news. asp?id_news=186.
International Monetary Fund, 2005(September), Peru, World Economic Outlook 2005, accessed November 9, 2005, at URL http://www.imf.org/external/pubs/ft/weo/2005/02/ data/index.htm.
Ministerio de Energía y Minas, 2005a, Informe anual de reservas as of December 2004, accessed December 20, 2005, at URL http://www.minem.gob.pe/hidrocarburos/pub_ reservas.asp.
Ministerio de Energía y Minas, 2005b, Inversión comprometida en minería 1992-2007, accessed October 12, 2005, at URL http://www.minem.gob.pe/mineria/estadisticas/excel_conten/cuadro_Inversiones_1992_2007.xls.
Petróleo Brasileiro S.A., 2005, Peru, Petrobrás Worldwide—2004, accessed December 20, 2005, at URL http://www2.petrobras.com.br/portal/ingles/AtuacaoInternacional. htm.
U.S. Central Intelligence Agency, 2005, Peru, World Factbook 2004, accessed August 17, 2005, at URL http://www.odci.gov/cia/publications/factbook/geos/pe.html.
U.S. Energy Information Administration, 2005 (April), Peru, Country Analysis Brief, accessed August 17, 2005, at URL http://www.eia.doe.gov/emeu/cabs/peru.html.

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Major Publications

Andean Air Mail & Peruvian Times, S.A., Lima: Carta Minera y Panorama Petrolero, weekly.
Business Monitor International Ltd., London, United Kingdom: Andean Group—Latin America, Monthly Executive Brief.
Instituto de Ingenieros de Minas del Perú, Lima: Monthly Organo Informativo.
L & L Editores SRL, Lima: Minas y Petróleo, El Semanario de la Minería y el Petróleo, weekly.
Metal Bulletin—Metals & Minerals Latin America, London. A Metal Bulletin Newsletter, monthly.
Ministerio de Energía y Minas, Lima:
Anuario Minero del Perú, annual.
En Cifras, Monthly Journal of Statistics.
Sociedad Nacional de Minería, Petróleo y Energía, Lima:
Monthly Reports.
Memoria Anual, annual.

TABLE 1
PERU: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity		2000	2001	2002	2003	2004[p]
METALS						
Antimony:						
Mine output, Sb content[e]		460	460	460	460	460
Metal		461	274	356	356	356
Arsenic, white[2]		2,495	2,800 [r]	2,970	2,970	2,970
Bismuth:						
Mine output, Bi content[e]		1,000	1,000	1,000	1,000	1,000
Metal		744	640	568	600	600
Cadmium, metal		483	473 [r]	422	529	529
Copper:						
Mine output, Cu content		553,924	722,355 [r]	844,553	842,578 [r]	1,035,574 [3]
Sulfate, Cu content		2,484	1,953	1,950	2,000	2,000
Metal:						
Blister		316,030 [r]	326,899 [r]	314,938 [r]	314,228	320,135 [3]
Refined, primary:						
Electrowon		127,311	131,409 [r]	156,467 [r]	171,198	314,997 [3]
Other		324,417	342,502 [r]	346,282 [r]	345,848	338,308 [3]
Total		451,728	473,911	502,749	517,046	653,305 [3]
Gold:[4]						
Mines	kilograms	116,085	121,902 [r]	138,810 [r]	159,770	158,436 [3]
Placers	do.	16,500	16,620	18,720	12,849	14,783 [3]
Total	do.	132,585	138,522 [r]	157,530 [r]	172,619	173,219 [3]
Indium	do.	5,015	4,263	5,500 [e]	5,500	5,500
Iron and steel:						
Iron ore and concentrate:						
Gross weight	thousand metric tons	4,144	4,564	4,594	5,239	6,439 [3]
Fe content	do.	2,813	3,087	3,105	3,541	4,315 [3]
Metal:						
Pig iron	do.	327	330 [e]	330	330	330
Sponge iron	do.	80	70 [r]	30 [r]	80	80
Ferroalloys[e]		360	360	360	360	360
Steel:						
Crude		749,082	690,000 [5]	750,000 [5]	750,000 [5]	750,000 [5]
Ingots and castings[e]	thousand metric tons	510	510	510	510	510
Semimanufactures[e]		250	250	250	250	250
Lead:						
Mine output, Pb content		270,576	289,546	305,651 [r]	308,874	306,211 [3]
Metal		116,412	121,169 [r]	119,588	112,289	118,970 [3]
Manganese, mine output, Mn content[e]		200	200	200	200	200
Molybdenum, mine output, Mo content		7,193	9,499	8,613 [r]	9,561	14,246 [3]
Selenium, metal, refined	kilograms	23,110	16,110	20,600	20,600 [e]	21,000
Silver:						
Mine output, Ag content		2,438	2,571 [r]	2,870	2,921	3,060 [3]
Metal, refined		1,180	1,194 [r]	1,193	1,147	1,250 [3]
Tellurium, metal	kilograms	22,020	19,105	21,600	22,000 [e]	22,000
Tin:						
Mine output, Sn content		70,901	38,182 [r]	38,815	40,202	67,675 [3]
Metal[6]		37,410	27,683 [r]	35,828	39,181	41,613 [3]
Zinc:						
Mine output, Zn content		910,303	1,056,629	1,232,997 [r]	1,372,790	1,209,006 [3]
Metal		199,813	204,646 [r]	172,688	202,076	195,692 [3]

See footnotes at end of table.

TABLE 1--Continued
PERU: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity		2000	2001	2002	2003	2004[p]
INDUSTRIAL MINERALS						
Barite		11,403	11,031	3,806	2,906	3,606 [3]
Boron materials, crude (borates)		9,309	9,374	6,698	9,315	9,578 [3]
Cement, hydraulic	thousand metric tons	3,906	3,950	3,980	4,000	4,590 [3]
Chalk[e]		101,000	101,000	101,000	101,000	101,000
Clays:						
Bentonite		21,059	18,217	20,760	14,980	18,471 [3]
Fire clay		5,973	5,900 [e]	5,900	5,900	5,900
Kaolin		6,165	5,532	1,934	2,653	2,720 [3]
Common clay		398,523	676,944	428,820	232,002	438,976 [3]
Diatomite[e]		35,100	35,100	35,100	35,100	35,100 [3]
Feldspar		5,642	4,253	6,018	7,349	6,005 [3]
Gypsum, crude		140,630	20,966 [r]	75,306	71,114	149,735 [3]
Lime		140,630	30,568	30,600	21,134	21,200
Nitrogen, N content of ammonia[e]		-- [r]	5,000 [r]	5,000 [r]	5,000	5,000
Phosphate rock:						
Crude, gross weight[e]		17,300	15,800	16,400	31,600	37,760 [3]
P_2O_5 content		5,581	4,825	6,018	11,610	13,870 [3]
Salt, all types		247,619	418,954	278,948	187,416	248,898 [3]
Stone, sand and gravel:						
Stone:[e]						
Dolomite		645	645	645	645	645
Flagstone		300,000	300,000	300,000	300,000	300,000
Granite		2,000	2,000	2,000	2,000	2,000
Limestone	thousand metric tons	4,334	4,370	4,370	4,400	4,400
Marble		10,511	11,636	16,553	21,134	22,208 [3]
Onyx		150	150	150	150	150
Quartz and quartzite (crushed)		40,000	40,000	40,000	40,000	40,000
Shell, marl		4,000	4,000	4,000	4,000	4,000
Slate		16,706	16,800	10,944	14,260	11,950 [3]
Travertine		16,220	2,971	4,183	4,658	6,038 [3]
Sand and gravel:						
Construction	thousand metric tons	1,607	1,154	1,011	907	1,220 [3]
Silica sand	do.	74	120	300	196	871 [3]
Sulfur, elemental:						
Native[e]		100	100	100	100	100
Byproduct of metallurgy[e]		60,000	60,000	60,000	60,000	60,000
Sulfuric acid, gross weight		590,209	623,084	623,100	623,000	623,000
Talc and related materials:						
Talc		9,668	11,165	10,685	10,791	9,548 [3]
Pyrophyllite		8,000 [e]	8,069 [r]	9,514 [r]	12,291 [r]	14,282 [3]
Total[e]		17,700	19,234 [r]	20,199 [r]	23,082 [r]	23,830 [3]
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Anthracite, run-of-mine		16,625 [r]	6,593 [r]	17,602 [r]	5,768 [r]	8,876 [3]
Bituminous, run-of-mine		10,000 [e]	13,626 [r]	3,976 [r]	9,900 [r]	13.475 [3]
Total		26,600 [r]	20,200 [r]	21,600 [r]	15,700 [r]	22,351 [3]
Coke, all types[e]		10,000	10,000	10,000	10,000	10,000
Gas, natural:						
Gross	million cubic meters	371 [r]	371 [r]	543 [r]	523	860 [3]
Marketed	do.	344 [r]	370 [r]	442 [r]	520 [r]	857 [3]
Natural gas liquids:						
Natural gasoline and others[7]	thousand 42-gallon barrels	613 [r]	595 [r]	573 [r]	584 [r]	4,216 [3]
Butane	do.	1,000 [r]	1,223 [r]	989 [r]	1,037 [r]	5,508 [3]
Total	do.	1,613 [r]	1,818 [r]	1,562 [r]	1,621 [r]	9,724 [3]

See footnotes at end of table.

TABLE 1--Continued
PERU: PRODUCTION OF MINERAL COMMODITIES[1]

(Metric tons unless otherwise specified)

Commodity		2000	2001	2002	2003	2004[p]
MINERAL FUELS AND RELATED MATERIALS--Continued						
Petroleum:						
Crude	thousand 42-gallon barrels	36,214 [r]	35,440 [r]	35,356 [r]	33,343	34,448 [3]
Refinery products:						
Liquefied petroleum gas	do.	2,484	2,612	3,100	2,551	2,938 [3]
Gasoline, motor	do.	9,291	9,767	11,593	9,202	8,848 [3]
Jet fuel	do.	2,822	2,966	3,521	3,289	3,822 [3]
Kerosene	do.	5,235	5,503	6,532	4,354	2,467 [3]
Distillate fuel oil	do.	12,355	12,988	15,417	14,972	15,082 [3]
Lubricants	do.	513	539	642	520	266 [3]
Residual fuel oil	do.	18,348	19,287	22,894	23,134	20,462 [3]
Asphalt	do.	--	--	--	770	1,011 [3]
Other[8]	do.	4,800	5,053	5,998	5,379	8,629 [3]
Total	do.	55,848	58,715	69,697	64,171	63,525 [3]

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown. [p]Preliminary. [r]Revised. -- Zero.
[1]Table includes data available through October 2005.
[2]Output reported by Doe Run Resources Corp.
[3]Reported figure. Source: Ministerio de Energía y Minas—Peru.
[4]Peru's placer gold production was reported.
[5]Output reported by Mexico's Steel Chamber—CANACERO—Ten years of steelmaking statistics in Latin America, 1996-2005.
[6]Output reported by Minsur S.A.'s smelter.
[7]Includes hexane.
[8]Includes refinery fuel and losses.

TABLE 2
PERU: STRUCTURE OF THE MINERAL INDUSTRY IN 2004

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Antimony	metric tons	Doe Run Resources Corp. (private, 100%)	Smelter at La Oroya, Junin Department	700
Barite		Barmine S.A. (private, 100%)	Santa Cruz de Cocachacra, Huarochiri, Lima Department	NA
Bentonite		Minerales Andinos S.A. (NL Industries Co., 90%)	Vichayal Mine, Piura Department	9
Bismuth	metric tons	Doe Run Resources Corp. (private, 100%)	Refinery at La Oroya, Junin Department	1,000
Cement		Cementos Lima S.A. (private, 100%)	Atocongo Plant, Lima Department	3,500
Do.		Cementos Pacasmayo S.A.A. (private, 100%)	Pacasmayo Plant, La Libertad Department	1,000
Do.		Cemento Andino S.A. (private, 100%)	East Lima Plant, Lima Department	800
Do.		Cementos Yura S.A. (private, 100%)	Yura Plant, Arequipa Department	300
Do.		Cementos Sur S.A. (private, 100%)	Arequipa Plant, Arequipa Department	200
Copper		Southern Peru Copper Corp. (SPCC) (Grupo Mexico, S.A. de C.V., 54.2%; Marmon Corp., 14.2%; Phelps Dodge Overseas Capital Corp., 14%; others, 17.6%)	Cuajone Mine, Moquegua Department	200
Do.		do.	Toquepala Mine, Tacna Department	160
Do.		do.	Smelter at Ilo, Moquegua Department	320
Do.		do.	Refinery at Ilo, Moquegua Department	300
Do.		Compañía Minera Antamina S.A. (CMA) (BHP Billiton plc., 33.75%; Noranda Inc., 33.75%; Teck Cominco Ltd., 22.5%; Mitsubishi Corp., 10%)	Antamina Mine, Huari, Ancash Department	1,000
Do.		do.	Antamina concentrator, Ancash Department	400
Do.		Doe Run Peru S.R.Ltda. (private, 100%)	Cobriza, Huancavelica Department	70
Do.		do.	Smelter at La Oroya, Junin Department	65
Do.		do.	Refinery at La Oroya, Junin Department	60
Do.		Compañía Minera Atacocha S.A. (private, 100%)	Yanacancha Mine, Junin Department	30
Do.		Compañía Minera Condestable S.A. (private, 100%)	Condestable Mine, Junin Department	20
Do.		Glencore International AG (private, 100%)	Casapalca, Lima Department	60
Do.		Volcan Compañía Minera S.A.A. (private, 100%)	San Cristobal, Mahr Tunel, and Andaychagua, Junin Department	60
Do.		Cía. Minera San Ignacio de Morococha S.A. (private, 100%)	Yauricocha, Junin Department	60
Do.		BHP Billiton Tintaya S.A. (private, 100%)	Tintaya Mine, Cusco Department	90
Do.		Sociedad Minera Cerro Verde S.A.A. (Phelps Dodge Corp., 55%; Sumitomo Metal Mining Co. Ltd., 25%; Compañía de Minas Buenaventura S.A.A., 20%	Cerro Verde, Arequipa Department	100
Do.		do.	Electrowon at Cerro Verde, Arequipa Department	90
Dolomite		Minera Baribent S.A. (private, 100%)	Esperanza, Ancash Department	25
Gold	kilograms	Minera Yanacocha S.R.L. (Newmont Mining Corp., 51.35%; Compañía de Minas Buenaventura S.A.A., 43.65%; World Bank/International Finance Corporation, 5%)	Yanacocha, La Quinua, and Maqui-Maqui Mines, Cajamarca Department	70,000
Do.	do.	Minera Barrick Misquichilca S.A. (Barrick Gold Corp., 100%)	Pierina, Cajamarca Department	26,000
	do.			
Do.	do.	Compañía Minera Poderosa S.A. (private, 100%)	Poderosa, La Libertad Department	2,000
Do.	do.	Compañía de Minas Buenaventura S.A.A. (private, 100%)	Orcopampa, Arequipa Department	5,000
Do.	do.	Minas Arirahua S.A. (private, 100%)	Arirahua, La Libertad Department	2,000
Do.	do.	Asesoría Contable Minera S.A. (private, 100%)	Ocona, Santa Clarita, Explatoro, and Molino de Oro, Arequipa Department	1,000
Do.	do.	Cía. Aurífera Río Inambari S.A. (Cía. Minera del Sur S.A., 84%, and Aurífera Claudia, 16%)	Rio Caichive, Madre de Dios Department	200
Do.	do.	Minera Aurífera Retamas S.A. (private, 100%)	Retamas, La Libertad Department	5,200
Do.	do.	Consorcio Minero Horizonte S.A. (private, 100%)	Parcoy, La Libertad Department	4,000
Do.	do.	Compañía Minera Sipán S.A.C. (private, 100%)	Sipan, Inca, La Libertad Department	4,800
Do.	do.	Compañía Minera Ares S.A.C. (private, 100%)	Ares, La Libertad Department	5,200
Do.	do.	Cía. Minera Aurífera Santa Rosa S.A. (private, 100%)	Santa Rosa, Puno Department	3,000

TABLE 2--Continued
PERU: STRUCTURE OF THE MINERAL INDUSTRY IN 2004

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Iron ore		Shougang Hierro Perú S.A. (Shougang Corp., 100%)	Marcona, Ica Department	13,000
Lead		Doe Run Peru S.R.Ltda. (private, 100%)	Smelter at La Oroya, Junin Department	150
Do.		do.	Refinery at La Oroya, Junin Department	120
Do.		Empresa Minera Los Quenuales S.A.	Izcaycruz, Lima Department	10
Do.		do.	Yauliyacu, Lima Department	15
Do.		Volcan Compañía Minera S.A.A. (private, 100%)	San Cristobal, Mahr Tunel, and Andaychagua, Junin Department	70
Do.		do.	Paragsha, Cerro de Pasco Department	85
Do.		Compañía Minera San Ignacio de Morococha S.A. (private, 100%)	Yauricocha, Junin Department	5
Do.		Compañía Minera Atacocha S.A. (private, 100%)	Yanacancha Mine, Junin Department	40
Do.		Compañía Minera Milpo S.A. (private, 100%)	El Porvenir Mine, Cerro de Pasco Department	25
Do.		Compañía Minera Santa Luisa S.A. (private, 100%)	Huanzala Mine, Junin Department	40
Do.		Sociedad Minera El Brocal S.A.A. (private, 100%)	San Gregorio Mine, Cerro de Pasco Department	60
Do.		Corp. Minera Nor Perú S.A. (Pan American Silver Corp., 100%)	Quiruvilca, La Libertad Department	10
Molybdenum		Southern Peru Copper Corp. (SPCC) (Grupo Mexico, S.A. de C.V., 54.2%; Marmon Corp., 14.2%; Phelps Dodge Overseas Capital Corp., 14%; others, 17.6%)	Cuajone, Moquegua Department and Toquepala, Tacna Department	NA
Petroleum, crude	42-gallon barrels per day	Petrotech del Perú S.A. (Perupetro, 100%)	Onshore Piura Department; northeast and central jungle areas, Loreto Department	68,000
Do.	do.	Petróleo Brasileiro S.A. (Perupetro, 100%)	Pacific Coast, offshore Piura Department	30,000
Do.	do.	Pluspetrol S.A. (private, 100%)	Northeastern jungle, Loreto Department	90,000
Do.	do.	Occidental Petroleum Corp. (private, 100%)	Block 1-AB, northern jungle, Loreto Department	28,000
Petroleum products	do.	Petroperú S.A.	Refineries at Talara, Lima, Iquitos, Marsella, Milagro, and Pucallpa	195,000
Do.	do.	do.	Refinery La Pampilla, Lima Department	100,000
Do.	do.	do.	Refinery Conchan, Lima Department	20,000
Phosphate rock	metric tons	Empresa Minera Regional Grau Bayóvar S.A. (Grupo Votorantim Metais S.A., 100%)	Bayovar phosphate mine, Piura Department	50
Natural gas	million cubic meters per day	Pluspetrol Perú Corp. S.A. (Pluspetrol S.A., 36%; Hunt Oil Company, 36%; SK Corp., 18%; Tecpetrol del Perú S.A.C., 10%)	Camisea gas deposit, Cusco Department	NA
Do.	do.	Petrotech del Perú S.A. (Petroperú S.A., 100%)	Pucallpa, Loreto Department	120
Do.	do.	Aguaytia S.A. (Petroperú S.A., 100%)	Aguaytia gas deposit, Ucayali Department	80
Do.	do.	Pluspetrol S.A. (private, 100%)	Pucallpa, Loreto Department	60
Silica sand		Minera Baribent S.A. (private, 100%)	María G. and Martín I., Junin Department	27
Silver	kilograms	Empresa Minera Los Quenuales S.A.	Yauliyacu, Lima Department	16,000
Do.		do.	Izcaycruz, Lima Department	6,000
Do.	do.	Doe Run Peru S.R.Ltda. (private, 100%)	Refinery at La Oroya	809,000
Do.	do.	Compañía Minera San Ignacio de Morococha S.A. (private, 100%)	Yauricocha, Junin Department	46,500
Do.	do.	Compañía de Minas Buenaventura S.A.A (private, 83%, and Centromin 17%)	Julcani and Huachocolpa Mines Huancavelica Department, Uchucchacua Mine, Lima Department	350,000
Do.	do.	Compañía de Minas Buenaventura S.A.A, (private, 100%)	Orcopampa Mine, Arequipa Department	161,000
Do.	do.	Volcan Compañía Minera S.A.A. (private, 100%)	San Cristobal, Mahr Tunel, and Andaychagua, Junin Department	325,000
Do.	do.	Sociedad Minera Corona S.A. (private, 100%)	Hualgayoc, Cajamarca Department	175,000
Do.	do.	Compañía Minas Arcata S.A. (private, 100%)	Arcata, Arequipa Department	170,000
Do.	do.	Southern Peru Copper Corp. (SPCC) (Grupo Mexico, S.A. de C.V., 54.2%; Marmon Corp., 14.2%; Phelps Dodge Overseas Capital Corp., 14%; others, 17.6%)	Ilo smelting and refining, Moquegua Department	150,000
Do.	do.	Compañía Minera Santa Luisa S.A. (private, 100%)	Huanzala Mine, Junin Department	53,000

TABLE 2--Continued
PERU: STRUCTURE OF THE MINERAL INDUSTRY IN 2004

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Silver--Continued	do.	Compañía Minera Raura S.A. (private, 100%)	Raura, Lima Department	54,000
Do.	do.	Compañía Minera Milpo S.A. (private, 100%)	Yanacancha, Cerro de Pasco Department	110,000
Do.	do.	Compañía Minera Atacocha S.A. (private, 100%)	Yanacancha Mine, Junin Department	130,000
Do.	do.	Sociedad Minera El Brocal S.A.A. (private, 100%)	San Gregorio Mine, Cerro de Pasco Department	110,000
Do.	do.	Corp. Minera Nor Perú S.A. (Pan American Silver Corp., 100%)	Quiruvilca, La Libertad Department	125,000
Steel		Sider Corp. S.A. (Acerco S.A., 49.4%; Grupo Wiese, 49.4%; others, 1.2%)	Chimbote, Ancash Department	550
Do.		Empresa Laminadora del Pacífico S.A. (Acero Arequipa S.A., 100%)	Pisco, Ica Department	180
Tellurium	metric tons	Doe Run Peru S.R.Ltda. (private, 100%)	Refinery at La Oroya	12
Tin, ore	metric tons per day	Minsur S.A. (private 100%)	San Rafael Mine, Puno Department	2,500
Do.	metric tons	do.	Pisco smelting and refining, Ica Department	45,000
Tungsten	do.	Minera Regina S.A. (private, 100%)	Palca XI, Puno Department	1,400
Do.	do.	Fermín Málaga Santolalla S.A. (private, 100%)	Pasto Bueno, Ancash Department	1,000
Zinc		Volcan Compañía Minera S.A.A. (private, 100%)	Cerro de Pasco, Cerro de Pasco Department; San Cristobal, Mahr Tunel, and Andaychagua, Junin Department	320
Do.		Compañía Minera Antamina S.A. (CMA) (BHP Billiton plc., 33.75%; Noranda Inc., 33.75%; Teck Cominco Ltd., 22.5%; Mitsubishi Corp., 10%)	Antamina Mine, Huari, Ancash Department	165
		do.	Antamina concentrator, Ancash Department	70
Do.		Empresa Minera Los Quenuales S.A.	Pachangara, Lima Department	200
Do.		do.	Izcaycruz, Lima Department	40
Do.		Compañía Minera San Ignacio de Morococha S.A. (private, 100%)	Yauricocha, Junin Department	80
Do.		do.	San Vicente Mine, Junin Department	70
Do.		Doe Run Peru S.R.Ltda. (private, 100%)	Refinery at La Oroya	70
Do.		Sociedad Minera Refinería de Zinc Cajamarquilla S.A. (Grupo Votorantim Metais S.A., 99%, and employees, 1%)	Refinery at Cajamarquilla, Lima Department	130
Do.		Compañía Minera Atacocha S.A. (private, 100%)	Yanacancha Mine, Junin Department	60
Do.		Compañía Minera Raura S.A. (private, 100%)	Raura, Lima Department	45
Do.		Corp. Minera Nor Perú S.A. (Pan American Silver Corp., 100%)	Quiruvilca, La Libertad Department	25
Do.		Compañía Minera Santa Luisa S.A. (private, 100%)	Huanzala Mine, Junin Department	50
Do.		Compañía Minera Milpo S.A. (private, 100%)	Yanacancha, Cerro de Pasco Department	80
Do.		Sociedad Minera El Brocal S.A.A. (private, 100%)	San Gregorio Mine, Cerro de Pasco Department	220

TABLE 3
PERU: RESERVES OF MAJOR MINERALS IN 2004

(Thousand metric tons unless otherwise specified)[1]

Commodity		Reserves	
Coal, all types		1,100,000	
Copper		57,900	
Gold	metric tons	3,000	[2]
Iron ore		861,000	
Lead		5,200	
Molybdenum		450	[e]
Natural gas	billion cubic meters	250	
Petroleum, crude	million barrels	253	
Phosphate rock		820	
Salt		100,000	[e]
Silver	metric tons	43,800	
Sulfur		150,000	[e]
Tin		700	
Uranium		100	[3]
Zinc		18,200	

[e]Estimated; estimated data are rounded to no more than three significant digits; may not add to totals shown.

[1]2004 and 2005 "Anuario de la Minería del Perú" Ministerio de Energía y Minas except for natural gas and petroleum crude; U.S. Geological Survey's Mineral Commodity Summaries 2005; U.S. Energy Information Administration 2005.

[2]Excludes metal in placer deposits.

[3]Recoverable at prices of $100 or less per kilogram of uranium.